Lucas Bijan Alexis

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EDUCATION

Duke University, Durham, NC *Expected May 2029*

GPA: 3.88/4.00

Major: Biomedical Engineering and Mechanical Engineering

Relevant Coursework: Quantitative Physiology with Biostatistical Applications, Microbiology, Mechanics of Solids, Fundamentals of Electrical and Computer Engineering, Engineering Innovation

RELEVANT EXPERIENCE

Student Researcher, Matthew L. Becker Research Group, Duke University *September 2026 - Present*

- Characterize mechanical and electrical properties of synthetic polymers for soft robotics and sensor applications
- Fabricate biocompatible polymer mesh prototypes intended for vaginal prolapse repair

Student Researcher, Bass Connections, Duke University *June 2026 - Present*

- Design 3D printed molds incorporating dissolvable components to create hollow organ models for robotic surgery training
- Developed a silicone forearm model for training peripheral venous blood draws and catheter placement; one of 10 finalists in the ACS DIY Model Competition; rated 4.78/5 for teaching utility by 14 surgical residents

Engineer, Duke Engage Uganda, Duke University *June 2026 - July 2026*

- Create wearable device for early screening of pre-eclampsia for women in rural Uganda
- Conducted virtual needs-finding with clinical partners in Uganda, driving multiple design iterations and validating device performance against custom phantom models, developed due to restrictions on human testing

Design Engineer, Kawempe National Referral Hospital *August 2025 - December 2025*

- Designed three hospital bed attachments to improve delivery ward safety and efficiency
- Conducted materials and needs research with clinical staff to identify the highest-utility attachments given budget constraints and existing practices

Research Assistant, Texas A&M Qatar, Doha, Qatar *June 2024-August 2024*

- Investigated the effect of 3D printer parameters on part strength (tensile/compressive), dimensional accuracy, and print reliability
- Presented experimental findings and statistical analysis to the department head, informing ongoing research on the 3D printing of sustainable polymer blends
- Redesigned test geometries to dramatically improve print success rates for test prints of experimental polymer blends, accelerating graduate research

LEADERSHIP AND EXTRACURRICULAR INVOLVEMENT

Outreach Director, Med Design, Duke University *April 2026 - Present*

- Cultivate relationships with medtech alumni to secure speaker events and inform club project selection
- Lead Engineering Sprint for 50 new members, training them in CAD and electronics fundamentals

Hand Subgroup Lead, Enable, Duke University *September 2026 - Present*

- Lead a team of 5 in developing a motorized wrist and tendon-actuated hand as part of a full arm prosthetic for a local client

SKILLS

Languages: French (native), Spanish (fluent)

Computer or Technical: Fusion360, SolidWorks, Onshape, 3D Printing, Soldering

Lab or Research: ANOVA, Power Analysis, Cell Culture, PCR, Hemocytometry, Gel Electrophoresis